

THAT WHICH IS CLAIMED IS:

1. A method for tuning the torsional natural frequency of a rotor comprising the step of forming within winding slots defined by radially projecting winding teeth at least one tuning slot that
5 extends radially inwardly from the bottom of the winding slot a distance to tune the rotor to a desired torsional natural frequency.

2. A method according to Claim 1, wherein the at least one tuning slot has a width smaller than the diameter of any winding wire received within the winding slot to prevent winding wire from passing into
5 the tuning slot.

3. A method according to Claim 1, wherein the at least one tuning slot is positioned at a location that minimizes impact to the electromagnetic characteristics of the rotor cross-section.

4. A method according to Claim 1, and further comprising a plurality of tuning slots.

5. A method for tuning the torsional natural frequency of a rotor having opposing poles and a quadrature axis, comprising the step of forming within the winding slots defined by radially projecting
5 winding teeth that are positioned substantially at the quadrature axis, at least one tuning slot that extends radially inwardly from the bottom of the winding slot a distance to tune the rotor to a desired torsional natural frequency.

6. A method according to Claim 5, wherein the at least one tuning slot has a width smaller than the width of any winding wire received within the winding slot to prevent winding wire from passing into
5 the tuning slot.

7. A method according to Claim 5, wherein the at least one tuning slot is positioned at a location that minimizes impact to the electromagnetic characteristics of the rotor cross-section.

8. A method according to Claim 5, and further comprising a plurality of tuning slots.

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9. A rotor comprising:
a rotor shaft;
a cylindrically configured rotor body formed as part of the shaft and having a plurality of radially
5 projecting winding teeth that define winding slots for receiving winding wire therein, said winding slots having a bottom portion spaced radially inward; and
at least one tuning slot that extends
radially inward from the bottom of a winding slot a
10 distance that tunes the rotor to a desired torsional natural frequency.

10. A rotor according to Claim 9, wherein said at least one tuning slot has a width smaller than the diameter of any winding wire received within the winding slot to prevent winding wire from passing into
5 the tuning slot.

11. A rotor according to Claim 9, wherein the at least one tuning slot is positioned at a

location that minimizes impact to the electromagnetic characteristics o f the rotor cross-section.

12. A rotor according to Claim 9, and further comprising a plurality of tuning slots.

13. A rotor according to Claim 9, wherein said rotor body is formed of a plurality of rotor laminations stacked together.

14. A rotor comprising:

a rotor shaft;

5 a cylindrically configured rotor body formed as part of the shaft and having a plurality of radially projecting winding teeth defining winding slots for receiving winding wire therein, said rotor body having two or more poles and a quadrature axis, said winding slots having a bottom spaced radially inward; and
10 at least one tuning slot positioned at the quadrature axis and extending radially inward from the bottom of the winding slot a distance that tunes the rotor to a desired torsional natural frequency.

15. A rotor according to Claim 14, wherein said at least one tuning slot has a width smaller than the diameter of any winding wire received within the winding slot to prevent winding wire from passing into
5 the tuning slot.

16. A rotor according to Claim 14, wherein the at least one tuning slot is positioned at a location that minimizes impact to the electromagnetic characteristics o f the rotor cross-section.

17. A rotor according to Claim 14, and further comprising a plurality of tuning slots positioned substantially at the quadrature axis.

18. A rotor comprising:

a rotor shaft;

a cylindrically configured rotor body formed as part of the shaft, said rotor body having a
5 plurality of radially projecting winding teeth defining winding slots for receiving winding wire therein, said rotor body having two poles and a quadrature axis, said winding slots having a bottom spaced radially inward;
and

10 at least one tuning slot extending radially inward from the bottom of the coil slot a distance that tunes the rotor to a desired torsional natural frequency, wherein said winding slots positioned at said poles are devoid of any tuning slot.

19. A rotor according to Claim 18, wherein said at least one tuning slot has a width smaller than the diameter of any winding wire received within the winding slot to prevent winding wire from passing into
5 the tuning slot.

20. A rotor according to Claim 18, wherein the at least one tuning slot is positioned at a location that minimizes impact to the electromagnetic characteristics of the rotor cross-section.